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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/608,639      | 06/30/2000  | Yongquin Chen        | 1-18                | 9272             |

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Docket Administrator Room 3C 512  
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EXAMINER

INZIRILLO, GIOACCHINO

ART UNIT PAPER NUMBER

2828

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/608,639

Applicant(s)

CHEN ET AL.

Examiner

Gioacchino Inzirillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

*Paul IP*

PAUL IP

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## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ventrudo et al US 5,715,263 (herein after known as Ventrudo) in view of Verdiell et al. US 5,870,417 (herein after known as Verdiell). Ventrudo teaches in Fig. 2 of his patent a laser for a communications system comprising an external cavity laser made up of a gain medium 26, coupling optics 36, fiber 32 and grating 34. According to column 2 lines 50 – 52, the Ventrudo invention provides a laser source having multiple longitudinal modes across a narrow bandwidth of its output.

According to column 5 lines 63 – 66, the coupling efficiency of the laser diode gain medium 26

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and the fiber 32 is 60%. What Ventrudo fails to teach is a beam expansion region and an antireflection layer. However, Verdiell teaches this in Fig. 1, see beam expansion region 18a and facet 16 which is shown with an antireflection layer denoted by the letters AR. Verdiell teaches in column 4 lines 37 – 54 the reason for having a beam expansion region 18a is to enhance the coupling efficiency between the gain medium 12 and the fiber 20, and to facilitate alignment therebetween. According to column 4 lines 4 – 15 teach that the reason for having the AR coating on the front facet of the gain medium 12 is so that the diode does not act like a laser, but like a gain medium in an external cavity. The AR coating suppresses lasing that would normally occur in the diode, and allows the HR coated side and the grating to become the cavity reflectors. This simplifies over the Ventrudo invention because it allows the coupling optics to be eliminated, and higher coupling efficiency as well, see column 4 lines 39 – 40. Therefore, it would be obvious to one of ordinary skill in the art to modify the Ventrudo invention as taught by Verdiell.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ventrudo in view of Verdiell as applied to claims 1, 2 and 10 above, and further in view of Tsuji et al. US 5,780,875 (herein after known as Tsuji). Ventrudo in view of Verdiell fails to teach a bit error rate of less than  $10^{-9}$ . However, Tsuji teaches this in column 5 lines 55 – 56, providing a highly accurate data transmission system. Therefore, it would be obvious to one of ordinary skill in the art to modify Ventrudo in view of Verdiell as taught by Tsuji.

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Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ventrudo in view of Verdiell as applied to claims 1, 2 and 10 above, and further in view of Coldren et al. US 6,195,485 et al. (herein after known as Coldren). Ventrudo in view of Verdiell teaches the invention as outlined in the rejection above, but fails to teach a bit error rate of less than  $10^{-12}$ . However, Coldren teaches this in column 11 lines 16 – 17. Therefore, it would be obvious to one of ordinary skill in the art to modify the Ventrudo in view of Verdiell as taught by Coldren.

Claims 3, 4, 5, 8, 9, 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ventrudo in view of Verdiell as applied to claims 1, 2 and 10 above, and further in view of Campbell et al. US 5,978,400 (herein after known as Campbell) and Dugan US 5,710,650 (herein after known as Dugan). Ventrudo in view of Verdiell teaches the invention as outlined in the rejection above.

Ventrudo in view of Verdiell fails to teach a cavity length less than 1cm in length. However, Campbell teaches this in column 5 lines 49 – 52. Therefore, it would be obvious to one of ordinary skill in the art to modify Ventrudo in view of Verdiell as taught by Campbell. Ventrudo in view of Verdiell also fails to teach a system length less than 100 km. However, Dugan teaches in column 1 lines 19 – 32 what is considered a long-haul system. One can ascertain from this passage, if long haul systems of greater than 10km can be constructed and are in use, short haul systems must also be well within the skill level in the art. Therefore, it would be obvious to one of ordinary skill in the art to have Ventrudo in view of Verdiell in a system less than 100 km as taught by Dugan. Ventrudo in view of Verdiell fails to teach a laser operated at 2.5 GHz or

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greater. However, Dugan teaches this in column 1 lines 19 – 20. Therefore, it would be obvious to one of ordinary skill in the art to modify Ventrudo in view of Verdiell as taught by Dugan. As for the limitation of a lack of temperature compensating apparatus, this limitation is obvious since neither Ventrudo nor Verdiell contains such apparatus. Regarding the direct modulation limitation, this claim is obvious. There can only be optical pumping or direct modulation of a diode to produce laser light. Either way would be obvious to one of ordinary skill in the art.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ventrudo in view of Verdiell as applied to claims 3, 4, 5, 8, 9, 11, 12 and 15 above, and further in view of Tsuji et al. US 5,780,875 (herein after known as Tsuji). Ventrudo in view of Verdiell fails to teach a bit error rate of less than  $10^{-9}$ . However, Tsuji teaches this in column 5 lines 55 – 56, providing a highly accurate data transmission system. Therefore, it would be obvious to one of ordinary skill in the art to modify Ventrudo in view of Verdiell as taught by Tsuji.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ventrudo in view of Verdiell as applied to claims 3, 4, 5, 8, 9, 11, 12 and 15 above, and further in view of Coldren et al. US 6,195,485 et al. (herein after known as Coldren). Ventrudo in view of Verdiell teaches the invention as outlined in the rejection above, but fails to teach a bit error rate of less than  $10^{-12}$ . However, Coldren teaches this in column 11 lines 16 – 17. Therefore, it would be obvious to one of ordinary skill in the art to modify the Ventrudo in view of Verdiell as taught by Coldren.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gioacchino Inzirillo whose telephone number is 703-305-1967. The examiner can normally be reached on M-F 8:30AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

May 27, 2002

  
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